WHAT IS CLAIMED IS

1. A charge transfer device comprising:

a transfer channel; and

plural pairs of two-layered transfer electrodes arranged along a transfer direction on the transfer channel, wherein two-phase driving pulses are applied to the plural pairs of two-layered transfer electrodes, and the transfer channel below a paired two-layered transfer electrode disposed at the last portion in the transfer direction has a first area, a second area which is provided at the downstream of the first area in the transfer direction and has a deeper potential level than the first area, and a third area which is provided at the downstream of the second area in the transfer direction and has a deeper potential level than the second area.

2. The charge transfer device as claimed in claim 1, further comprising transfer electrodes which are independently provided above the first area, the second area and the third area.

3. The charge transfer device as claimed in claim 2, wherein common driving pulses are applied to the independently-provided transfer electrodes.

4. The charge transfer device as claimed in claim 1, wherein commonly provided transfer electrodes are provided above the second area and the third area.

5. The charge transfer device as claimed in claim 4, wherein

common driving pulses are applied to the transfer electrodes provided above the first area and the commonly provided transfer electrode.

6. The charge transfer device as claimed in claim 1, wherein the transfer channel has at the last portion in the transfer direction an area which is gradually tapered at the downstream side, and at least the third area is disposed so as to be overlapped with the gradually-tapered area.

7. A solid-state image pickup device comprising:

an image pickup portion which contains plural photosensors and converts input light to electrical signals by the plural photosensors;

a transfer channel for transferring the charges thus photoelectrically converted in the image pickup portion; and

plural pairs of two-layered transfer electrodes arranged along a transfer direction on the transfer channel, wherein two-phase driving pulses are applied to the plural pairs of two-layered transfer electrodes, and the transfer channel below a paired two-layered transfer electrode disposed at the last portion in the transfer direction has a first area, a second area which is provided at the downstream of the first area in the transfer direction and has a deeper potential level than the first area, and a third area which is provided at the downstream of the second area in the transfer direction and

has a deeper potential level than the second area.